Pascopyrum smithii - Nassella viridula Herbaceous Vegetation

COMMON NAME	Western Wheatgrass - Green Needlegrass Herbaceous Vegetation
SYNONYM	Western Wheatgrass - Green Needlegrass Mixedgrass Prairie
PHYSIOGNOMIC CLASS	Herbaceous Vegetation (V)
PHYSIOGNOMIC SUBCLASS	Perennial graminoid vegetation (V.A)
PHYSIOGNOMIC GROUP	Temperate or subpolar grassland (V.A.5)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (V.A.5.N)
FORMATION	Medium-tall sod temperate or subpolar grassland (V.A.5.N.c)
ALLIANCE	*Pascopyrum smithii* Herbaceous Alliance

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community is found in Wyoming, Montana, Saskatchewan, Manitoba, North Dakota, and South Dakota. Details of its distribution within these states and provinces are not available.

Wind Cave National Park

Extensive areas of western wheatgrass - green needlegrass vegetation can be found in the eastern half and southwest quarter of the Park, which are predominantly grassland. In these areas, western wheatgrass - green needlegrass often occurs with Kentucky bluegrass and little bluestem vegetation. The little bluestem community typically occurs on steeper slopes, with Kentucky bluegrass and western wheatgrass vegetation on gentler slopes and in swales. Stands also occur in other areas of the Park in openings in forests and woodlands.

ENVIRONMENTAL DESCRIPTION

Globally

This community is found at the bottom of narrow valleys, on stream terraces, and on rolling uplands (Jones 1992, USFS 1992). The soils are usually sandy loams, silt loams, or clay loams. Soil profile is typically well developed. The parent material is siltsone and mixed sedimentary rock (USFS 1992). This community usually occurs on level or nearly level ground but sometimes may be on moderate slopes of any aspect.

Wind Cave National Park

Western wheatgrass - green needlegrass stands occur in a wide variety of habitats throughout the Park. Sites generally are flat to moderate in slope, and are found on all aspects.

MOST ABUNDANT SPECIES

Globally

Stratum	Species
Herbaceous	*Nassella viridula, Pascopyrum smithii*

Wind Cave National Park

Stratum	Species
Herbaceous	*Pascopyrum smithii, Poa pratensis, Nassella viridula, Stipa comata*

CHARACTERISTIC SPECIES

Globally

Nassella viridula, Pascopyrum smithii

Wind Cave National Park

Nassella viridula, Pascopyrum smithii

VEGETATION DESCRIPTION

Globally

This community is dominated by mid grasses. The vegetation cover tends to be moderate to high, with almost all of the canopy provided by graminoids (Redmann 1975, USFS 1992). The dominant species are *Pascopyrum smithii* and *Nassella viridula*, both of

which attain heights of 0.6-1.0 m, Other mid grasses in this community are *Stipa comata, Koeleria macrantha, Poa* spp., *Sporobolus cryptandrus*, and, on sandier soils, *Calamovilfa longifolia*. Shorter graminoids are common, including *Bouteloua gracilis, Carex eleocharis, Carex filifolia,* and *Carex inops* ssp. *heliophila*. Where it is present within the range of this community, *Carex pensylvanica* may be abundant (Redmann 1975). The forbs *Astragalus* spp., *Achillea millefolium, Sphaeralcea coccinnea, Artemisia ludoviciana*, and *Lepidium densiflorum* are also typical of this community. *Artemisia frigida* is the only shrub that is usually present, although Johnston (1987) reported that tree size *Juniperus scopulorum* may also be present.

Wind Cave National Park
Stands of western wheatgrass - green needlegrass typically have moderate to dense herbaceous cover, ranging from 50 to 100%. Dominant graminoids include western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), needle-and-thread (*Stipa comata*) and Kentucky bluegrass (*Poa pratensis*). Species dominance varies locally within a stand. Other common herbaceous species include white sagebrush (*Artemisia ludoviciana*), scurf-pea (*Psoralidium tenuiflorum*) and naked-spike ambrosia (*Ambrosia psilostachya*). Big bluestem (*Andropogon gerardii*) may be present, with high coverage in wetter seasons. On steeper slopes, it is not uncommon to find significant amounts of downy indigo-bush(*Amorpha canescens*), with cover greater than 20%. These shrub stands are recognized as a separate map unit for the Wind Cave vegetation map.

In stands of western wheatgrass - green needlegrass at Wind Cave NP, species dominance varies within the stand. Western wheatgrass, green needlegrass, needle-and-thread (*Stipa comata*) and Kentucky bluegrass (*Poa pratensis*) all can be locally dominant, often to the exclusion of other species. For this reason, it is important to sample multiple points in characterizing a stand of this type.

OTHER NOTEWORTHY SPECIES

CONSERVATION RANK G4. The G4 rank is based on the broad geographic distribution and the relatively broad environmental requirements of this association. The prevalence of cheatgrass in many stands, though, may necessitate a review of this rank.

DATABASE CODE CEGL001583

MAP UNITS
The western wheatgrass - green needlegrass community is one of the types included in map unit 16, western wheatgrass - Kentucky bluegrass complex, on the Wind Cave vegetation map. It is not mapped separately. Western wheatgrass - green needlegrass stands with standing dead trees and few or no living trees corresponds to map unit 13, western wheatgrass - Kentucky bluegrass complex (with burned ponderosa pine). Western wheatgrass - green needlegrass stands with leadplant cover greater than 20% are mapped separately as map unit 32, lead plant shrubland.

COMMENTS
Wind Cave National Park
The western wheatgrass - green needlegrass type grades into the Kentucky bluegrass type, and some stands are difficult to classify. Western wheatgrass - green needlegrass often forms a mosaic with Kentucky bluegrass and little bluestem vegetation. The little bluestem community typically occurs on steeper slopes, with Kentucky bluegrass and western wheatgrass vegetation on gentler slopes and in swales. Big bluestem may be present in stands of western wheatgrass - green needlegrass. In favorable years, big bluestem will contribute significant cover during the later part of the growing season.

Western wheatgrass - green needlegrass herbaceous vegetation is very common. Many stands were visited in preparing the vegetation map. Extensive areas of western wheatgrass - green needlegrass vegetation can be found in the eastern half and southwest quarter of the Park, which are predominantly grassland. Smaller stands occur in other areas of the Park in openings in forests and woodlands.

REFERENCES
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Johnston, B.C. 1987. Plant associations of region two: potential plant communities of Wyoming, South Dakota, Nebraska, Colorado, and Kansas. R2-ECOL-87-2. USDA Forest Service, Rocky Mountain Region, Lakewood, CO. 429 p.

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Redmann, R.E. 1975. Production ecology of grassland plant communities in western North Dakota. Ecol. Mono. 45:83-106.

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